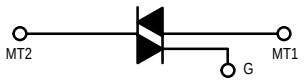
Triacs
Silicon Bidirectional Triode Thyristors

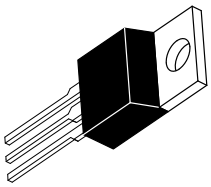
. . . designed primarily for industrial and consumer applications for full wave control of ac loads such as appliance controls, heater controls, motor controls, and other power switching applications.

- All Diffused and Glass-Passivated Junctions for Parameter Uniformity and Stability
- Small, Rugged, Thermowatt Construction for Low Thermal resistance and High Heat Dissipation
- Center Gate Geometry for Uniform Current Spreading
- Gate Triggering Guaranteed in Three Modes (MAC229 Series) or Four Modes (MAC229A Series)

MAC229 Series
MAC229A Series

TRIACs
8 AMPERES RMS
200 thru 800 VOLTS





CASE 221A-04
(TO-220AB)
STYLE 4

MAXIMUM RATINGS (T_J = 25°C unless otherwise noted.)

Rating	Symbol	Value	Unit
Peak Repetitive Off-State Voltage(1) (T_J = –40 to 110°C, 1/2 Sine ave 50 to 60 Hz, Gate Open) MAC229-4, MAC229A4 MAC229-6, MAC229A6 MAC229-8, MAC229A8 MAC229-10, MAC229A10	V_{DRM}	 200 400 600 800	Volts
On-State RMS Current (T_C = 80°C) Full Cycle Sine Wave 50 to 60 Hz	$I_{T(RMS)}$	8	Amps
Peak Non–repetitive Surge Current (One Full Cycle 60 Hz, T_J = 110°C)	I_{TSM}	80	Amps
Circuit Fusing (t = 8.3 ms)	I^2t	26	A^2s
Peak Gate Current (t ≤ 2 μs)	I_{GM}	±2	Amps
Peak Gate Voltage (t ≤ 2 μs)	V_{GM}	±10	Volts
Peak Gate Power (t ≤ 2 μs)	P_{GM}	20	Watts
Average Gate Power (T_C = 80°C, t ≤ 8.3 ms)	$P_{G(AV)}$	0.5	Watts
Operating Junction Temperature Range	T_J	–40 to 110	°C
Storage Temperature Range	T_{stg}	–40 to 150	°C
Mounting Torque		8	in. lb.

1. V_{DRM} for all types can be applied on a continuous basis. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded. (cont.)

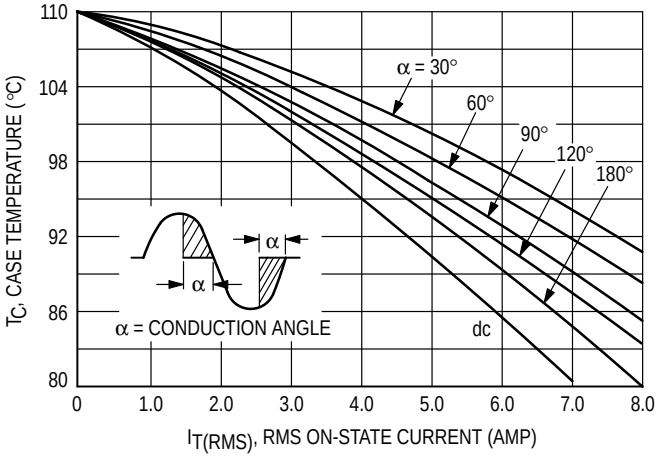
THERMAL CHARACTERISTICS

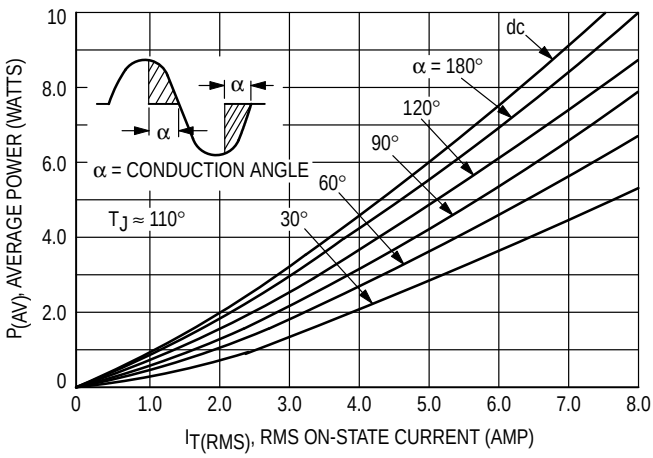
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.2	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	60	°C/W

ELECTRICAL CHARACTERISTICS (T_C = 25°C and either polarity of MT2 to MT1 voltage unless otherwise noted.)

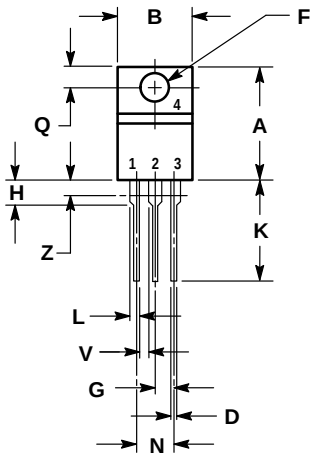
Characteristic		Symbol	Min	Typ	Max	Unit
Peak Blocking Current(1)		I_{DRM}				
(V_D = Rated V_{DRM}, Gate Open)	T_J = 25°C		—	—	10	μA
	T_J = 110°C		—	—	2	mA
Peak On-State Voltage		V_{TM}	—	—	1.8	Volts
(I_{TM} = 11 A Peak, Pulse Width ≤ 2 ms, Duty Cycle ≤ 2%)						
Gate Trigger Current (Continuous dc)		I_{GT}				mA
(V_D = 12 V, R_L = 100 Ω)						
MT2(+), G(+); MT2(+), G(–); MT2(–), G(–)			—	—	10	
MT2(–), G(+) "A" SUFFIX ONLY			—	—	15	
Gate Trigger Voltage (Continuous dc)		V_{GT}				Volts
(V_D = 12 V, R_L = 100 Ω)						
MT2(+), G(+); MT2(+), G(–); MT2(–), G(–)			—	—	2	
MT2(–), G(+) "A" SUFFIX ONLY			—	—	2.5	
(V_D = Rated V_{DRM}, T_C = 110°C, R_L = 10 k)						
MT2(+), G(+); MT2(+), G(–); MT2(–), G(–);	All Types		0.2	—	—	
MT2(–), G(+) "A" SUFFIX ONLY	MAC229 series		0.2	—	—	
Holding Current		I_H	—	—	15	mA
(V_D = 12 Vdc, I_{TM} = 200 mA, Gate Open)						
Gate-Controlled Turn-On Time		t_{gt}	—	1.5	—	μs
(V_D = Rated V_{DRM}, I_{TM} = 16 A Peak, I_G = 30 mA)						
Critical Rate of Rise of Off-State Voltage		dv/dt	—	25	—	V/μs
(V_D = Rated V_{DRM}, Exponential Waveform, T_C = 110°C)						
Critical Rate of Rise of Commutation Voltage		dv/dt(c)	—	5	—	V/μs
(V_D = Rated V_{DRM}, I_{TM} = 11.3 A, Commutating di/dt = 4.1 A/ms, Gate Unenergized, T_C = 80°C)						

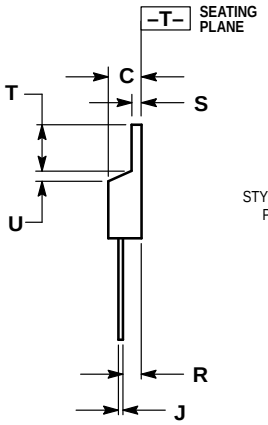
1. Ratings apply for open gate conditions. Devices shall not be tested with a constant current source for blocking voltage such that the voltage applied exceeds the rated blocking voltage.





PACKAGE DIMENSIONS





STYLE 4:
PIN 1. MAIN TERMINAL 1
2. MAIN TERMINAL 2
3. GATE
4. MAIN TERMINAL 2

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.035	0.64	0.88
F	0.142	0.147	3.61	3.73
G	0.095	0.105	2.42	2.66
H	0.110	0.155	2.80	3.93
J	0.014	0.022	0.36	0.55
K	0.500	0.562	12.70	14.27
L	0.045	0.055	1.15	1.39
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	—	1.15	—
Z	—	0.080	—	2.04

CASE 221A-04
(TO–220AB)

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